**IN THE CLAIMS**

Please make the following claim substitutions:

1. (Currently amended) A data transmission system comprising:

a first plurality of Gigabit Ethernet input/output ports, each port adapted to be coupled to a first Gigabit Ethernet link carrying data packets;

a multiplexer interface coupled to said first input/output ports;

a multiplexer coupled to said multiplexer interface, ~~said data packets~~;

a transmitter coupled to said multiplexer; and

an optical link coupled to said transmitter;

wherein said multiplexer interface comprises a first optical transceiver adapted to detect a first loss of signal in said first Gigabit Ethernet links and generate a signal loss code insert in response to detection of said first loss of signal; and wherein said multiplexer is adapted to multiplex said signal loss code insert with said data packets, and wherein said data packets and said signal loss code insert are transmitted across said optical link by said transmitter to a receiving node, and wherein said signal loss code insert is transmitted continuously by said transmitter as long as said first loss of signal is detected.

2. (Previously presented) The system of claim 1, further comprising:

a receiver coupled to said optical link;

a demultiplexer coupled to said receiver; and

a demultiplexer interface coupled to said demultiplexer,

wherein said demultiplexer comprises a plurality of second optical transceivers that are each adapted to be coupled to a plurality of second Gigabit Ethernet links;

wherein said demultiplexer interface is adapted to receive said signal loss code insert and in response, prevent at least one of said second optical transceivers from transmitting light.

3. (Original) The system of claim 2, further comprising a photo-detector circuit coupled to said demultiplexer;

wherein said photo-detector circuit is adapted to detect a

second loss of signal in said optical link and in response, generate a deactivate signal and transmit the deactivate signal to said second optical transceivers.

4. (Previously presented) The system of claim 2, wherein each of said second optical transceivers comprises a physical layer chip, adapted to detect a third loss of signal in one of said second Gigabit Ethernet links and go into an auto-negotiation stage.

5. (Original) The system of claim 1, wherein said signal loss code insert is bit multiplexed with said data packets.

6. (Original) The system of claim 1, wherein said multiplexer is adapted to multiplex on a bit by bit basis.

7. (Currently amended) A method of communicating the existence of faults in a data transmission system, said method comprising:

receiving a plurality of data packets carried on a plurality of first Gigabit Ethernet links at a first plurality of Gigabit Ethernet input/output ports;

multiplexing said data packets onto an optical link;

detecting a first loss of signal in said first Gigabit Ethernet links and generating a signal loss code insert in response to detecting said first loss of signal; ~~and~~

multiplexing said signal loss code insert with said data packets, and

transmitting said data packets and said signal loss code insert across said optical link to a receiving node, wherein said signal loss code insert is transmitted continuously as long as said first loss of signal is detected.

8. (Previously presented) The method of claim 7, said optical link coupled to a demultiplexer, said demultiplexer comprising a plurality of second optical transceivers that are each adapted to be coupled to a plurality of second Gigabit Ethernet links, said method further comprising:

receiving said signal loss code insert; and

preventing at least one of said second optical transceivers from transmitting light in response to said signal loss code insert.

9. (Original) The method of claim 7, wherein a photo-detector circuit is coupled to said demultiplexer, said method further comprising:
detecting a second loss of signal in said optical link;
generating a deactivate signal in response to said second loss of signal; and
transmitting the deactivate signal to said second optical transceivers.

10. (Previously presented) The method of claim 7, wherein each of said second optical transceivers comprises a physical layer chip,
said method further comprising said physical layer chip
detecting a third loss of signal in one of said second Gigabit Ethernet links; and
entering into an auto-negotiation stage.

11. (Previously presented) The method of claim 7, further comprising:
bit multiplexing said signal loss code insert with said data packets.

12. (Previously presented) The method of claim 7, wherein the multiplexing is accomplished on a bit by bit basis.

13. (Currently amended) A method of communicating the existence of a fault in a link over which data was being transmitted from a transmitting node to a receiving node in a data transmission system, the method comprising transmitting a fault-identifying signal to the receiving node along at least a portion of said link in place of said data, wherein said fault-identifying signal is transmitted continuously to the receiving node as long as said fault in said link exists.

14. (Currently amended) A system for communicating the existence of a fault in a link over which data was being transmitted from a transmitting node to a receiving node in a data transmission system, said system comprising:
means for detecting a loss of signal at an input/output port, and

means for transmitting a fault-identifying signal to the receiving node along at least a portion of said link in place of said data in response to detecting said loss of signal, wherein said fault-identifying signal is transmitted continuously to said receiving node as long as said loss of signal is detected.

15. (Currently amended) A multiplexer interface comprising:

a plurality of input ports, each input port being adapted to receive data from a respective input link,

a plurality of output ports, the data received by each input port being applied to a corresponding one of said output ports,

means for detecting a loss of signal at any one of said input ports,

means for generating a fault-identifying signal in response to detecting said loss of signal, and

means for applying said fault-identifying signal to the output port corresponding to one of said input ports, wherein said fault-identifying signal is applied to said output port continuously as long as said loss of signal is detected.

16. (Currently amended) The multiplexer interface of claim 15, wherein said data are carried in packets of variable length and wherein said data are ~~8b/10b-coded~~ encoded using a predetermined code.

17. (Currently amended) The multiplexer interface of claim ~~15~~ 16, wherein said fault identifying signal is a signal that ~~8b/10b encoding~~ said predetermined code does not produce.

18. (Currently amended) A multiplexer interface, comprising:

at least one input port, said input port being adapted to receive data from a respective input link,

at least one output port, the data received by said input port being applied to said output port,

means for detecting a loss of signal at said input port,

means for generating a fault-identifying signal in response to detecting said loss of signal, and

means for applying said fault-identifying signal to said output port, wherein said fault-identifying signal is applied continuously as long as said loss of signal is detected.

19. (Currently amended) The multiplexer interface of claim 18, wherein said data are carried in packets of variable length and wherein said data are ~~8b/10b coded~~ encoded using a predetermined code.

20. (Currently amended) The multiplexer interface of claim ~~18~~ 19, wherein said fault identifying signal is a signal that ~~8b/10b encoding~~ said predetermined code does not produce.